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ABSTRACT

Men and women are not now similar in all their likes and dislikes, but it is an unanswered question as to which of those dissimilarities are directly related to job satisfaction or dissatisfaction. Basically, the sex difference problem raises an issue which is emphasized throughout the paper: that the goal of interest measurement is to predict job satisfaction because the methodology and validation of interest measurement are only indirectly related to that goal. New problems for interest measurement--the question of applicability to women of approaches based on men, and the questions raised by the current dramatic break in the socialization process of women--are examined in terms of the two types of interest measurement surveyed, one of which relies on stable socialization and is heavily tied to the past; the other does not take into account the experiential effect on interests. The contemporary view of career guidance emphasizes continuing exploration of career and self, and appropriate use of interest inventories with women may lead to focused exploration in totally new areas. Interest inventories should no longer be merely reported, they should change behavior. (Author/AJ)

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Impact of Interest Inventories on Career Choice

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New situations and events often force reexamination of established institutions and beliefs. For example, the two decades following the 1954 Supreme Court decision on school desegregation has been marked by the reevaluation of societal institutions and beliefs in light of increased awareness of the needs and rights of minority racial-ethnic groups. More recently, but with potential effects no less dramatic, the women's movement has raised consciousnesses to another set of injustices and again forced reexamination of previously unquestioned actions and beliefs. Because of the power that derives from a person's occupation in this society, both through money and status, one focal area of the women's movement has been the career opportunities of women. One specific concern in this area is the effect that interest inventories have on women's career choices and, in particular, the possibility of a negative, limiting effect.

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[1]Several of the issues in this paper have been discussed with our colleagues Dale J. Prediger, Melvin R. Novick, and Leo A. Munday over a period of several years. In particular, our thoughts about exploration in career guidance have been greatly influenced by Dale Prediger, who also provided many helpful suggestions on the manuscript, and our description of the various technical problems inherent to the people-similarity approach derive from arguments advanced by Melvin Novick in many past discussions. While we are greatly indebted for the benefit of these insights, the particular formulation of ideas presented here is, of course, our sole responsibility.

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Thus, interest measurement has become one of those established institutions which requires scrutiny and reexamination of basic tenets. It is the purpose of this paper to raise again, in light of our current understandings, questions about the basic objectives of interest measurement, the assumptions, rationales, or theories on which it is based, and to examine the implications of those objectives and assumptions for the career choices of women and men in a time of social flux and change.

Interest Measurement in Perspective

The problems, issues, and concerns which are being raised with regard to interest measurement are many and complex. Our own ideas and opinions on these topics have been in a state of change for several years and we doubt that the ideas in this paper will represent our final thoughts. At this point in our thinking, we have been forced back to some very basic aspects of interest measurement, namely what are interests and why are we trying to measure them. We believe reconsideration of what and why are basic to an examination of the questions which relate to the usefulness or bias of interest inventories. Therefore, we begin this paper by examining interest measurement in the perspective of its historical theories, purposes, and methods.

What Are Interests?

William James was one of the first psychologists to deal with the concept of interest. To James,

> "Only those items which I notice shape my mind--without selective interest, experience is an utter chaos. Interest alone gives accent and emphasis, light and shade, background and foreground--intelligible perspective, in a word (1890, p. 403)."

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Thus, James saw interests as a cognitive function of the mind, instrumental in selecting and organizing an individual's experience.

Kitson (1925) perceived the concept of interest in terms of the psychological constructs of "identification" and "self." To Kitson,

> "To be interested in a thing is to endeavor to identify one's self with it (1925, p. 141)."

In a classic review of interest measurement Fryer (1931) distinguished between "subjective" and "objective" interests. Subjective interests were defined as feelings of pleasantness and unpleasantness toward certain experiences and objective interests as observable reactions to such experiences. Both subjective and objective interests were viewed as acceptance-rejection activities.

In discussing interests, W. V. Bingham (1937), head of a group of individual psychologists at the Carnegie Institute of Technology, defined an interest as a tendency to become absorbed in an experience and to continue in it.

> "We therefore define interest not only in terms of the objects and activities which get attention and yield satisfaction, but also in terms of the strength of the tendencies to give attention to and seek satisfaction in these competing objects of interest."

Strong's early conception of interests revolved around an empirical definition based on the differentiation of men in various occupations by the Strong Vocational Interest Blank. By 1943, however, Strong (1943) presented his views on the nature of interests in the introductory chapter of The Vocational Interests of Men and Women. Simply stated, Strong saw interest as:

> "They (interests) point to what the individual wants to do, they are reflections of what he considers satisfying (1943, p. 19)."

In more recent work, Stong related,

> "What are interests? ... They remind me of tropisms. We go toward liked activities, go away from disliked activities (1960, p. 12)."

> "Interest scores measure a complex of liked and disliked activities selected so as to differentiate members of an occupation from nonmembers. Such a complex is equivalent to a "condition which supplies stimulation for a particular type of behavior," i.e., toward or away from participation in the activities characteristic of a given occupation. Interest scores are consequently measures of drives (1955, p. 142)."

The concept of interest was further refined by Carter (1944). Carter extended the concept of interest to include the ideas of "developmental growth," the "self concept," and "identification." The main impact of Carter's ideas may be gleaned from the following samples of his writing:

> "...the individual derives satisfaction from the identification of himself with some respected group; by this method he seizes some sort of status. This identification leads to an interest in restricted activities and experiences; to the extent that this is true the person learns about the vocation and the vocational group (1944, p. 185)."

Darley (1941) suggested that interest types represented outgrowths of personality development and that occupational selection and elimination were functions of personality type as well as functions of abilities and/or aptitudes. Darley (1941) concluded that:

> "...occupational interest types grow out of the development of the individual's personality (1941, p. 65)."

The concept of interest type was further elaborated by Bordin (1943) in terms of self-concept and identification. Bordin maintained that in answering an interest inventory an individual expresses his acceptance (or rejection)

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of a particular view or concept of himself in terms of his occupational stereotypes. For Bordin, interests encompass certain patterns of likes and dislikes that are expressions of personality, and as the self-concept fluctuates and changes so too will the pattern of likes and dislikes.

A somewhat different approach to the concept of interest has been provided by Berdie (1944).

> "When interests are considered as expressions of liking and disliking, attention can be paid to the objects liked or disliked. These objects form constellations; they have characteristics in common that enable us to place them in classes."

Berdie maintained that such constellations were relatively constant and could be considered fundamental aspects of personality. The specific interests or objects involved in the constellations could change and learning and emotional experiences could affect them but the constellations (or patterns of interest) themselves are not as susceptible to experience and are probably determined by constitutional and early social factors.

Super (1949) formulated a conceptual definition much like Bordin's:

> "Interests are the product of interaction between inherited aptitudes and endocrine factors on the one hand, and opportunity and social evaluation on the other. Some of the things a person does well bring him the satisfaction of mastery or the approval of his companions, and result in interests. Some of the things his associates do appeal to him and, through identification, he patterns his actions and interests after them; if he fits the pattern reasonably well he remains in it, but if not he must seek another identification and develop another self-concept and interest pattern (p. 406)."

Holland's view of interests can be seen in the following quotes from a recent book (Holland, 1973):

> "In short, what we have called "vocational interests" are simply another aspect of personality (p. 7)."
>
> "Just as we are more comfortable among friends whose tastes, talents, and values are similar to our own, so we are more likely to perform well at a vocation in which we "fit" psychologically...In the present theory, the congruence of a person and his environment is defined in terms of the structure of personality types and environmental models (p. 9)."

In summary, we can note several important common features of these conceptions of interests. First, they are a constellation of likes and dislikes leading to consistent patterns or types of behaviors. Second, they may involve some mix of genetic and environmental causes, but they are certainly related to environmental influences. Third, although the explanations of interests relate to satisfaction with activities, they are not derived from a clear explication of the link between interests and satisfactions.

Why Measure Interests?

As described in the previous section, interests are a pervasive part of a person's personality and an important guide to behavior. Thus, for this reason alone it would be "interesting" to these theorists to measure interests. However, we are concerned here not with researchers or theorists but with the implications of interest measurement for the people whose interests are being measured. When interest measures are used as feedback to such people, the basic goal or purpose of the interest measurement has been clear, even when only implicitly stated. That goal has been to provide people with information which would help them identify careers in which they would be satisfied. The word "satisfied" is used here to refer to various forms of satisfaction including happiness and personal fulfillment.

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Strong (1943) indicated this important link between interests and happiness or satisfaction,

> "The more happiness is stressed, and not mere efficiency, the more concern educators must have for interests; for they are indicators of what activities bring satisfaction. (p. 3)"

The same basic goal remains today as can be seen from Campbell (1971),

> "The Strong Blank is designed to help guide the student and the employee into areas where they are likely to find the greatest job satisfaction. (p. 2)"

Similarly, according to Kuder (1968)

> "Interest scores...can be used to help [an individual] set goals likely to bring him personal fulfillment. (p. 3)"

Interests and Satisfaction

Interests have been defined in varying ways. characteristic constellations of likes and dislikes, patterns of behavior, drives, self-concepts, or personality. The basic goal of measuring interests has been given as providing information to help identify occupational situations which will be satisfying and those which will not. Thus we must examine the link between interests as a characteristic of a person and the occupational environment as a source of a variety of types of satisfaction. As can be seen from the foregoing discussion of interests, this link is elusive at best.

The link between interests and satisfaction is provided by a primary theoretical theme of vocational psychology--namely, that congruence between an individual and the environment leads to satisfaction in a job. This theme

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can be seen in different forms in both trait and factor theories and psychodynamic theories, the two lines in the historical development of vocational psychology identified by Crites (1969). The roots of this congruence theme can be seen in the man-job matching model of Parsons (1909) and has been emphasized in the writings of numerous other authors (e. g., Dawis, England, and Lofquist, 1964; Holland, 1966, 1973).

Though espousing the congruence notion, interest inventory developers have not been directly concerned with the relationship between personal and environmental characteristics. Instead interest measures have been built around personal characteristics alone, namely, constellations of likes and dislikes which describe a person's behavior pattern or personality type. Thus, the problem of the link between measured interests and job satisfaction remains a central problem for interest measurement methodology.

Interest Measurement Methods

In this section we briefly survey the dominant rationales for interest measurement methods and how they provide the link to job or career satisfaction, the stated basic goal.

People-similarity rationale. Historically, the dominant method of interest measurement has derived from the observation that people in the same job have similar characteristics, similar likes and dislikes. As Darley and Hagenah (1955, p. 19) noted, "The most general clue to an understanding of interest measurement is found in the old adage that birds of a feather flock together." From this occurrence a logic or rationale for interest measurement can be stated:

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Rationale 1: If a person likes the same things that people in a particular job like, the person will be satisfied with that job.

According to this rationale, one measures the degree of similarity between a person's likes and dislikes and those of people in a number of jobs and concludes that the person will likely be most satisfied in the job for which the similarities are the greatest. The two historically dominant interest inventories, the Strong Vocational Interest Blank and the later Kuder forms, are implementations of this rationale. For simplicity of discussion, this rationale will be referred to in this paper as the people-similarity rationale.

As stated, the people-similarity rationale is more an empirical observation than a rationale. And, in fact, interest measurement in its most widely used forms (the Strong and the later Kuder forms) has been primarily an empirical science. Although the question "Why is a person who has interest similar to those of people in a job likely to be satisfied with that job?" has not been entirely ignored, it has received far less attention than the observation itself that such a person is likely to be satisfied. The apparent answer to this very basic question "Why?" can be gleaned from the conceptions of interest described above: People who stay in and are satisfied with a particular job do so because the job provides an environment which is, in some unspecified way, congruent with their constellation of likes and dislikes. Thus a person with interests similar to such people would have similarly congruent interests for that job environment.

Activity-similarity rationale. A derivative of the people-similarity rationale which has received greater emphasis in recent years could be called

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the activity-similarity rationale. In its purest form, this rationale answers the question "Why?" which intervenes between similarity and satisfaction in a very direct way.

> Rationale 2: If people now like to do activities similar to the activities required by a job, they will like those job activities and consequently be satisfied with their job.

Under this rationale, one measures a person's likes and dislikes for common activities similar to those required on a job and concludes that the person will likely be most satisfied in the job requiring similar activities to those which the person now most likes to do.

A number of recent efforts have placed great emphasis on types of activities as they relate to job activities. The Ohio Vocational Interest Survey (D'Costa et al, 1970) emphasizes the data, people, things dimensions of job activity and uses actual job activities from the Dictionary of Occupational Titles. Holland's Self-directed Search (Holland, 1973) classifies past job-related activities into categories derived from and related to the structure of the world of work. Prediger and Roth (in press) provide a direct link from a job activity orientation to a personality orientation seen in the structure of interests pervasive in present interest measures (Holland et al, 1969; Cole and Hanson, 1971). And recent interest inventory development at The American College Testing Program (The American College Testing Program, in press; Hanson, in press) has relied on common, familiar activities with an apparent relation to job activities as the basis for two new inventories. However, none of these approaches relies on a pure form of the activity-similarity rationale. Instead, activities have been used more as an indicator of the

constellation or type of personality of the person than as a direct indicator of likely satisfaction with particular job activities.

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How Have Interest Measures Been Validated?

If the basic goal of interest measurement is to relate to the many aspects of job satisfaction, the obvious way to validate interest measures is to empirically relate them to measures of job satisfaction. In fact, each of the two rationales described suggests a different ideal validation.

People-similarity validation. For the first rationale based on people-similarity, the obvious validation procedure is to relate interest scores to measures of satisfaction on the job. However, immediately a number of problems arise. First, the concept of job satisfaction is complex and difficult to measure. As Strong (1958) observed,

> "Years ago I contended that there was "no better criterion of a vocational interest test than that of satisfaction enduring over a period of years" (10, p. 385). I have never used satisfaction as a criterion on the ground that there seemed to be no good way to measure it. Such correlations as have been reported between interest scores and satisfaction have been for the most part too low to be of practical significance. [p. 449]"

Strong was no exception in these feelings and today interest inventories have still not used measures of job satisfaction as criteria for validation (except in terms of global satisfaction ratings in defining occupational criteria groups) just as the rationales of interest measurement have not directly involved the why and how of job satisfaction. But the measurement of job satisfaction has progressed over the years and we believe a fruitful area for future research is a more thorough examination of the relation of interests to various sources

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of job satisfaction (some of which we would expect to have a relation to interests and others of which we would expect no relation).

A second problem with this ideal validation concerns the prediction of relative satisfaction in different occupations when people can be in only one (or a very few) occupations at one time. Thus, we can usually only observe the degree of relationship of the interest scores to satisfaction in one job--the one the person chooses to enter.

Because of these problems with these ideal validations, interest inventories have been validated in terms of group membership. Strong listed four propositions needed to establish the predictive value of his vocational interest measures,

1. Men continuing in occupation A obtain a higher interest score in A than in any other occupation.
2. Men continuing in occupation A obtain a higher interest score in A than other men entering other occupations.
3. Men continuing in occupation A obtain higher scores in A than men who change from A to another occupation.
4. Men changing from occupation A to occupation B score higher in B prior to the change than in any other occupation including A. [1943, p. 388]

All four conditions rely on the occupational group to which a person belongs as an implicit indicator of the job in which that person would be most satisfied. And, in fact, empirical results have tended to confirm that people's interest scores (whether occupational scales or general scales) are consonant with the occupation in which they are employed and with which they state a general level of satisfaction.

The group membership criterion poses an important technical problem

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aside from the fact that it only indirectly addresses job satisfaction. The problem is that social influences can make the relationship between interests and group similarity high even when people would have been much happier in other occupations. As long as the society channels people with particular characteristics into particular occupations, interest inventories validated against group membership will be considered highly valid whether or not the people in an occupation are happier than they would be in other occupations and whether or not there are many people with other characteristics who could be happiest in that occupation.

Activity-similarity validation. Under the activity-similarity rationale, an inventory measures the liking of a person for activities related to job activities. Thus, the first step in ideal validation is to relate empirically the inventoried likes and dislikes of common, familiar activities with the likes and dislikes of actual job activities. Since the common goal is to relate to job satisfaction in a more global sense, the second step is to discover the extent to which liking particular job activities is important to more general job satisfaction. Although, as noted earlier, the purpose of inventorying likes and dislikes of such activities has commonly been to indicate general personal characteristics as in the people-similarity procedures, it would appear to us to be very useful to perform some of the steps of the ideal activity-similarity validation to learn more about the relative importance of various sources of job satisfaction and the link to interests.

New Problems for Interest Measurement

The perspective of interest measurement given in the previous section

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involves additionally two dominant elements not yet discussed. First, interest measurement has been predominantly developed by, for, and about men. Conceptions of interests have been largely based on data about men's interests; interest measurement methodology has arisen out of interest measures on men; and interest measures have been validated primarily on men. Second, interest measurement has depended on a relatively stable social situation in which no large breaks or changes in the socialization process occur within an individual life history or at a point or period in the society's history.

These two elements raise special problems in the 1970's. First, we are clearly concerned with women as well as men and we must examine the applicability for women of approaches based on men. Second, we are in a time of a rather dramatic break in the continuity of the socialization process for women as it relates to careers, self-concepts, and occupational roles. Thus, we must examine interest measurement approaches in light of this discontinuity. In this section we examine some of these new problems for interest measurement.

Problems with People-similarity Method

The people-similarity rationale described above relies very heavily on the stable socialization process and is tied very closely to the past. Two special problems of this method arise from its highly empirical orientation and its reliance on the status quo.

Limits of empiricism. Interest measurement has historically been a highly empirical science. As already noted, the thing we know most about

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it is that it has tended to work in the past. We know much less about why it has worked. To know something has worked in the past is very useful as long as the future is like the past. When the future is dramatically different, then we need to know why something has worked in the past in order to judge if and how it might work in the future. Thus, the empiricism of interest measurement which has been one of its great strengths is, we believe, at this time in history a weakness.

Reliance on the status quo. The people similarity methodology, which uses group membership as its primary criterion, relies heavily on the status quo. The group membership criterion, which undoubtedly properly includes elements of satisfaction (groups are usually limited to those expressing some level of satisfaction), also may, and almost certainly does, include elements extraneous to job satisfaction but resulting from the existing social situation. For example, when a physician scale is constructed by the people-similarity method, the scale is defined by the likes and dislikes of current (at the time of construction), satisfied physicians. Since many physicians have, in the past, come from relatively high socioeconomic status (SES) backgrounds, the physician scale of the Strong, for example, reflects these backgrounds as can be seen in Table 1. Although these items might relate to one's

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Insert Table 1 about here

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satisfaction in associating with people with similar high SES interests, they seem highly questionable as interests essential to satisfaction as a physician, especially when the field of medicine itself is taking steps to break this

Table 1

Selected Positively-scored Items from the SVIB Physician Scale for Men[a]

Amusements	Occupations
Tennis	Orchestra Conductor
Chess	
Bridge	School Subjects
Art Galleries	Literature
Symphony Concerts	
Skiing	Types of People
	Musical Geniuses

[a]From Campbell (1971). The entire SVIB Physician Scale for men includes a total of 76 items: 8 Amusements; 22 Occupations; 12 School Subjects; 6 Types of People; 9 Activities; 13 Preferences Between Items; 6 Abilities and Characteristics.

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traditional physician mold and encouraging the enrollment of a more diversified group of students.

In the case of women, the problem of reliance on the status quo becomes especially pronounced. It appears in obvious fashion in the lack of some occupational scales for women. Under the status quo, there are many occupations with few or no women in them and, therefore, under the people-similarity method the potential of women for satisfaction in these jobs cannot be predicted.

Problems with Activity-similarity Methods

Although the activity-similarity method avoids some of the problems of the people-similarity method by relying on the activities required on a job rather than the people who happen to be in it, it raises a different set of problems.

Experiential effects on interests. The activity-similarity method relies on people's liking or disliking of common activities similar to those required on jobs. However, the socialization process results in quite different exposure to activities by men and women. For example, in a nationwide study, Prediger, Roth, and Noeth (1973) found wide differences in the career-related experiences reported by girls and boys in grades 8, 9, and 11. These data indicated that the expressed interests of men and women in such activities differ markedly in ways that parallel the experiential differences. Thus while we know that only 17% of the 1969 Strong Women-in-General sample (Campbell, 1971, p. 403) liked "repairing electrical wiring," we do not know whether more would have liked it if the

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social setting encouraged rather than restricted such an activity for girls or, more importantly, whether more girls would learn to like it if they were encouraged. Thus, because of the differences in socialization, not liking an activity might have quite a different meaning for a boy who had tried it and been "allowed" to like it than for a girl whose socialization ruled it out. The activity-similarity method therefore must deal with the differences in socialization, in general, and in particular, their implications for predicting job satisfaction.

Problem of Sex Differences

The types of items which have historically appeared on interest inventories are subject to systematic sex differences. The previously noted "repairing electrical wiring" is a case in point. In contrast with the 17% women quoted above, 39% of the 1969 Strong Men-in-General sample reported liking that activity (Campbell, 1971, p. 400). Because of these sex differences, occupational scales were constructed separately by sex, masculinity-femininity scales based on items which differentiated the sexes came into being, and even separate forms of the inventory were constructed. There are, however, pitfalls into which this historical pattern has led us.

First, in the case of empirical occupational scales, the historical pattern has limited the information an inventory provides women since occupational scales are based on people already in occupations and many occupations have few women. For the same reason there are similar but fewer restrictions on the information given men. By leading us to separate the sexes in this way, this historical pattern has limited the direct comparison of men and women in

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the same occupations to determine to what extent there are differences in likes and dislikes and whether there are crucial likes and dislikes, regardless of sex, in relating to job satisfaction. Thus, we are left knowing that there are sex differences presently without knowing their relevance or irrelevance or implication for predicting job satisfaction.

There are similar problems with scales measuring general interest dimensions such as those of Holland. Holland has documented sex differences on his logically based scales and argued [undated (a)] that he is intentionally measuring the socialization process which differs now for girls and boys, resulting in different interests. We agree that he is measuring the socialization process and that it does now differ for girls and boys. However, we doubt that Holland's basic intention is to measure the socialization process per se as can be seen from the statement, "The SDS provides a method for locating groups of occupations where a person is most likely to find satisfaction [Holland, no date (b), p. 1]."

We believe it is an unanswered question as to whether the socialization process of girls is as predictive of job satisfaction as the same process for boys when girls have not been socialized to examine as wide a range of possible interests as boys and yet rather suddenly have access to that full range. The dilemma as we see it is presented graphically in Figure 1. In the past (Cases 1 and 2), the socialization process matched the career process in terms of the range of experiences and options. If we are in a state of transition, as we believe, the present (Cases 3 and 4) can be illustrated by a mismatch: career options are opening before the early socialization process can be

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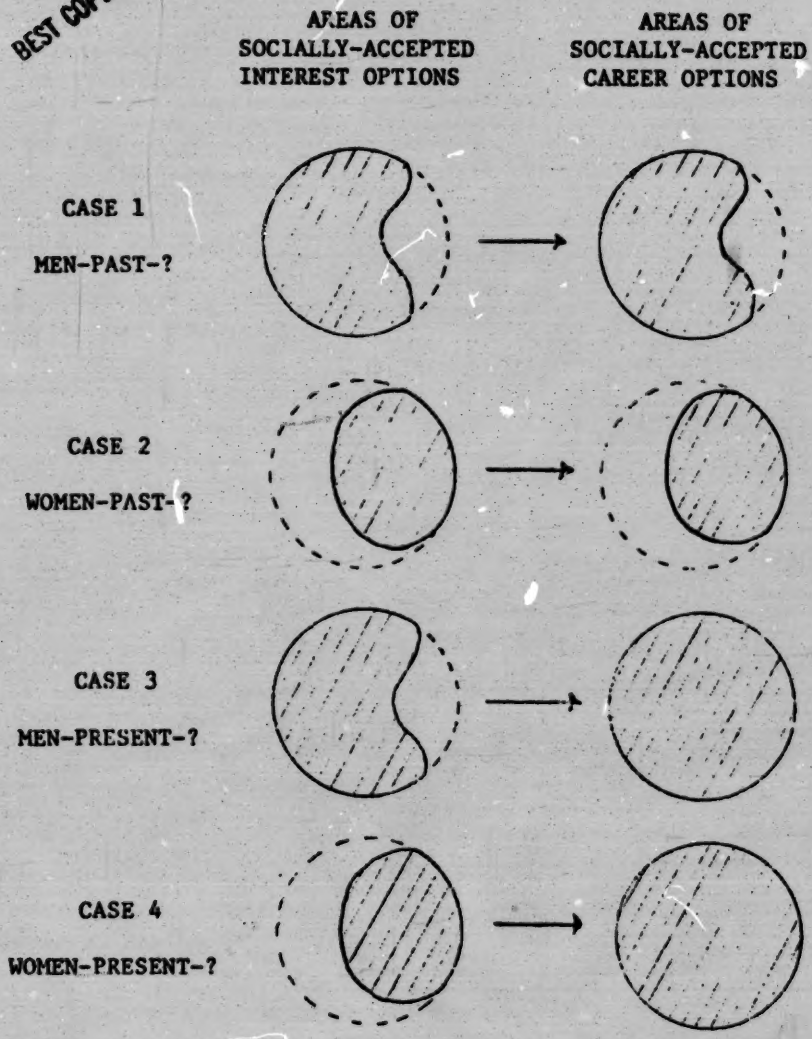

Fig. 1. A graphical representation of the correspondence of the socialization process with the career options available to men and women.

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changed accordingly. Although hopefully the future could be characterized by the full circle of options for both sexes, that situation will not immediately be reached In the interim, we must make some decisions and take some type of action.

Although the implications of the situations depicted in Cases 3 and 4 of Figure 1 are unknown, at least two different hypotheses on which to base action are possible. One hypothesis derives from the argument of Holland noted above and will be discussed here as the hypothesis of socialization dominance.

> Hypothesis of Socialization Dominance. Until the areas of socially-accepted interest options become broadened during a person's development, the careers in which such people will be satisfied will not broaden.

An alternative hypothesis emphasizes the importance of career opportunities over socialization. This hypothesis is implicit to the work of Cole (1973) on the structure of women's interests and will be referred to here as the hypothesis of opportunity dominance.

> Hypothesis of Opportunity Dominance. When career opportunities widen, people will find satisfaction in a wider range of careers in spite of limiting aspects of their earlier socialization.

Although neither hypothesis can be proven at this time, the particular one to which a person subscribes has important implications for the treatment of sex differences in interest measurement.

Basically, the sex difference problem raises an issue which has been emphasized throughout this paper, namely, that the goal of interest measurement is to predict satisfaction in a job or career. Because the methodology and validation of interest measurement is only indirectly related to that goal,

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it is easy to replace that goal with the prominent means, similarity of people or activities, and the similarity methodology tends by its nature to support the hypothesis of socialization dominance. But the problem of sex differences forces us to recall the more basic goal. Men and women are not now similar in all their likes and dislikes but is an unanswered question as to which of those dissimilarities are directly related to satisfaction or dissatisfaction. When we recognize this goal of predicting satisfaction, it becomes clear that we do not know which hypothesis is correct. Since our actions are likely to be based on one or the other, in the interim we must judge the value of the two hypotheses not by their correctness but by the results of the action to which they lead.

Problems of Norms and Reference Groups

One of the important implications of the two hypotheses concerns the norms or reference groups used in interest inventories. Holland reports interests as raw scores. No norm or reference group is used, instead the reference is the logical basis of the items. This results in scales which reflect very clearly the socialization process and women tend to score highest on Social and Artistic scales and very low on the Realistic scale. Such score reporting is consistent with the hypothesis of socialization dominance.

By contrast, recently developed interest instruments at The American College Testing Program (as part of the ACT Career Planning Program and the ACT Assessment) and the much older Kuder homogeneous scales use a different approach consistent with the opportunity dominance hypothesis. For those inventories, the raw general scale scores are compared with norms of

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the same sex as the person taking the inventory. Thus, a woman's score on a Technical scale, which may be low when compared with scores of men, is reported as high it is higher than the Technical scores of most women. The logic here is that some women will be able to find satisfaction in the full range of occupations (hypothesis of opportunity dominance) and the best bets in the previously unentered areas are those women who have higher interests than the mean produced by the socialization process. Some support for these procedures is found in the structure of women's interests reported by Cole (1973) in which referencing women's scores to women's norms produced the full range of interest patterns and occupational profiles which closely paralleled, where comparable, the occupational profiles based on men's interest scores.

These two cases are based on the use of general interest scales. Even greater problems exist for occupational scales although they take somewhat different forms. The application of the socialization dominance hypothesis would lead to the continued use of available occupational scales for women along with the construction of new occupational scales as women entered new occupations in sufficient number. However, both the Strong (at least, the new Strong-Campbell Interest Inventory) and the Kuder attempt to broaden the information given by reporting scores for women on occupational scales developed for men which seems at least a step in the direction of the opportunity dominance hypothesis. However, according to the last information available to us, the Strong-Campbell will report the general Basic scales using a combined sex reference group which will result in interest patterns more nearly corresponding to Holland's raw score patterns and the socialization dominance hypothesis

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than to the same-sex reference patterns.

Vocational Development and Career Guidance

Historically, interest inventories have been viewed as a source of information input at the time of career choice decisions. Career choice was often viewed as an "event" occurring at a single point in time. Thus, students who had to select a college major or decide on a job might go to a college counselor, take an interest inventory, and try to make a decision. The inventory was designed to assist such a choice at a pressing decision point.

However, today the prevailing view of career decisions and career guidance is distinctively different. First, career decisions are viewed not as an event but as a process which begins very early in a child's development and continues throughout life in a variety of career decision activities. Career education programs being developed for the schools emphasize these developmental aspects and are designed to promote career related experiences--both "hands on" and vicarious--in the full range of career options. Career knowledge and exploration are emphasized in the schools with the basic goal to avoid the sudden, pressured, "choices" at a time when some decision must be reached. Such programs of career education and career guidance offer many helpful possibilities in the broader experiences they provide and encourage for women at a time of transition.

Career guidance as it exists today emphasizes the use of information, including interest inventories, to stimulate career exploration and the exploration of self in relation to careers (Prediger, 1974). This process of exploration

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should lead people to discover new things about themselves and about the world of work. Using this type of information people can begin to consider a broader range of career options. The usefulness of this type of stimulation is that it provides focused exploration. Appropriate use of interest inventories with women may well lead to focused exploration in totally new areas.

Career guidance programs also emphasize the importance of transforming guidance information into action. That is, interest inventories should no longer be merely reported or interpreted. They should change behavior. This may occur in the form of students seeking new job experiences, involving parents in their career decision-making, and participating in volunteer work experiences. Thus, there are new problems and altered roles for interest inventories in this broadly conceived career guidance framework.

Where Do We Go From Here?

A primary result emerging from the perspective of the previous section is the lack of simple answers to the difficult problems raised. There are however, both discouraging and encouraging elements to be noted. The following statements are representative of our present beliefs after a reexamination of basic tenents and methods.

1. Interests still seem to us to be an important concept with considerable potential value for understanding differences and characteristic ways of behaving which people possess. Further, we suspect that interests will continue in the future to relate in many meaningful ways to various types of career satisfaction.

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2. We believe the goal to provide people with information which will help them choose careers in which they will be happy and satisfied is timely and worthy. The need to open wider career options for women and for men makes the goal perhaps even more important at the present than before.

3. We believe that present interest measures give important information about characteristic patterns of likes and dislikes and their historical occupational membership correlates.

4. We feel that if the link between interests and job satisfaction had been more explicitly examined during the last quarter century then we would know more now about predicting job satisfaction in a changing social environment and in particular about predicting job satisfaction for women.

5. We believe that we are in a situation in which many basic questions about validity of interest inventories cannot yet be answered completely or well. Thus we must make decisions in the interim with incomplete information.

When we are in a situation of not knowing what action is "valid" in terms of ultimate goals, possible courses of action must be evaluated in terms of possible advantages and disadvantages. One possible course of action would be to stop using interest inventories until we know more about the implications of recent social change on their ultimate validity. This action would avoid possible bad predictions but would also eliminate any possible positive role inventories might play. Another course of action would be to continue to use inventories but to take whatever actions are necessary to minimize the possible negative effects. The remainder of this paper deals with interim actions designed to maximize positive and minimize possible negative effects and the assumptions on which these actions are based.

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A Proposed Context for Interest Inventory Use

In an earlier section we described current conceptions of vocational development and the career education and career guidance programs which correspond to those conceptions. According to these views, career guidance occurs as a process rather than at a single decision point and involves providing a person with career experiences of various types and with information about self and careers, and emphasizes the importance of exploration behavior in the process of career decisions. Prediger (1974) has focused on this important role of career exploration in the career guidance process. Within that context, he views tests or inventories primarily as stimuli to that exploration.

We believe that implementation of a broad career exploration program provides the proper context in which interest inventories can serve a very valuable role as a stimulus for exploration. Such a use of interest inventories provides an interim course of action which maximizes the benefits of the inventories and minimizes the possible detriments.

Our belief in the value of this interim course of action is based on at least three assumptions. The first assumption is that people need some form of stimulus or organizing assistance in making career plans. Second, the best way for people to make judgments (or predictions) about whether or not they will be satisfied in an occupation is to obtain all the information they can about themselves and about the occupation. Third, by embedding interest inventory results in a broad career exploration process in which further exploration follows any inventory result, the negative impact of incorrect inventory predictions can be minimized.

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What Can We Expect an Interest Inventory To Do?

In the context of the career exploration process, we have two primary expectations for an interest inventory. These two expectations are expressed here as guidelines for interest measurement with several subordinate guidelines encompassed under the two general areas.

Broadened options. The first area of expectation for interest inventories concerns the broadening of career options.

1. Interest inventory scores should suggest occupations which broaden the options of both sexes throughout the full range of career areas.

There are several important aspects of this desired broadening. The first concerns the relation of inventory results to previous job preferences. As we view the career exploration process, a person with some job preference would explore that job in many ways and on the basis of that exploration would reach some sort of decision about the appropriateness of that job in relation to various personal goals. Thus, we view the predominant role of interest inventories as a broadener of options--to suggest reasonable possibilities for exploration which the person might otherwise have failed to explore. While a traditional distinction has been made between this exploratory role and a confirmatory role, we place far greater importance on the former. One way to examine the degree to which options are broadened is to compare inventory results with previous job preferences in accord with the following guideline.

1.a. For a given group, it is desirable that there be some variation between original occupational preferences and inventoried occupational suggestions and that an inventory produce several occupational options for each person.

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The second aspect of the broadening of options concerns the type of alternative options which an inventory suggests. For example, guideline 1.a. could be met by the inventory suggestions of "medical technologist" and "dental hygienist" to a woman whose original job preference was "nurse." This type of broadening within sex career stereotypes is insufficient. Similarly, it is inadequate to broaden options only within sex-related career areas such as suggesting primarily social types of occupations for women.

> 1.b. Interest inventories should produce approximately equal distributions of scores for men and women throughout the full range of possible general scale and occupational scale scores.

This guideline has important implications for the norming of interest scores. Preliminary data presented in Table 2 from a report in preparation at the American College Testing Program shows the distributional implications of three types of general scale scores from the ACT Interest Inventory for the type of two point codes used by Holland. Both the raw scores and scores referenced to a norm group composed equally of women and men produce vastly different two scale code options for women than for men. By contrast, the distributions of codes are quite similar for women and men when separate sex norms are used. Only the scores produced by the separate sex norms meet guideline 1.b With present instruments, people's scores will likely have to be reported in terms of their relation to the distribution of scores obtained by people of the same sex in order to accomplish the balanced distributions required under this guideline. Thus, we come back again to the previous discussion of the hypotheses of socialization dominance and opportunity dominance, and guideline 1.b. is clearly an expression of the latter hypothesis.

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Table 2

Distribution of Percentages of Holland Codes for Women and Men for Different Types of Score Referencing[1]

Holland Code	Codes Based on Raw Scores		Codes Based on Separate Sex Norms		Codes Based on Combined Sex Norms	
	W	M	W	M	W	M
Social Total	(67.3%)	(26.3%)	(17.9%)	(14.3%)	(28.8%)	(4.1%)
SE	14.3%	6.9%	5.1%	3.8%	6.6%	1.3%)
SC	11.3	1.8	2.2	1.5	6.0	0.3
SR	1.6	7.2	2.7	2.2	1.3	1.1
SI	11.8	4.5	3.3	2.4	5.6	0.8
SA	28.3	5.9	4.6	4.4	9.3	0.6
Enterprising Total	(3.1%)	(9.6%)	(13.6%)	(13.3%)	(11.1%)	(14.0%)
ES	1.7%	3.8%	2.9%	2.9%	3.4%	2.0%
EC	0.4	2.2	3.8	4.8	2.8%	4.3
ER	0.1	1.8	2.0	2.0	0.2	3.9
EI	0.1	0.7	0.9	0.9	0.6	1.5
EA	0.8	1.1	4.0	2.7	4.1	2.3
Conventional Total	(9.7%)	(8.7%)	(18.0%)	(16.2%)	(20.0%)	(11.9%)
CS	5.8%	2.5%	2.8%	1.4%	5.4%	0.6%
CE	2.2	2.6	6.8	6.2	7.4	4.6
CR	0.2	2.1	4.8	4.0	1.7	3.9
CI	0.4	1.2	1.8	2.9	2.4	2.2
CA	1.1	0.3	1.8	1.7	3.1	0.6
Realistic Total	(0.2%)	(18.9%)	(14.4%)	(19.4%)	(2.8%)	(35.8%)
RS	0.2%	6.1%	1.8%	2.0%	0.7%	2.9%
RE	0.0	2.8	2.2	4.2	0.3	8.7
RC	0.0	2.9	3.2	4.3	0.8	6.5
RI	0.0	5.5	3.8	5.7	0.2	14.5
RA	0.0	1.6	3.4	3.2	0.8	3.2
Investigative Total	(9.1%)	(30.0%)	(19.3%)	(21.2%)	(13.5%)	(24.7%)
IS	5.5%	11.7%	4.9%	5.1%	5.2%	2.5%
IE	0.1	1.5	1.2	1.7	0.4	1.7
IC	1.0	2.5	3.3	3.9	2.0	2.7
IR	0.2	10.1	5.1	3.9	1.4	12.8
IA	2.3	4.2	4.8	6.6	4.5	5.0
Artistic Total	(10.8%)	(6.4%)	(16.7%)	(15.3%)	(24.1%)	(9.4%)
AS	7.8%	3.2%	5.0%	5.1%	12.0%	2.5%
AE	0.5	0.9	2.8	3.4	4.0	1.8
AC	0.7	0.2	1.9	1.3	3.0	0.8
AR	0.3	0.8	3.8	1.4	1.7	2.5
AI	1.5	1.3	3.2	4.1	3.4	1.8
TOTALS	100%	100%	100%	100%	100%	100%

[1]Based on the scores of 3,439 college-bound high school students (2,009 women and 1,430 men) who took the ACT Interest Inventory in October, 1972.

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As already noted, the validity of either hypothesis is not now known. Therefore, guideline 1.b. is an expression of a belief first in the eventual validity of these types of predictions of satisfaction and second in the maximal positive aspects and minimal negative aspects of this interim course of action. If the opportunity dominance hypothesis is true, inventory results consistent with the socialization dominance hypothesis will have reinforced incorrect and inappropriate stereotypical views and minimized further exploration. On the other hand, if the socialization dominance hypothesis is true, inventory results consistent with the opportunity dominance hypothesis will have led people to waste time exploring new career areas but likely nothing more harmful since that exploration should result in the elimination of inappropriate inventory suggestions. Thus we justify 1.b. not only by our beliefs in the opportunity dominance hypothesis but more importantly in its high potential for positive social effect and its low potential for negative social effect.

While we see great social value and minimal harm in expanding options as described, this interim action should not substitute for more thorough attempts at validation. Further, these validation attempts should not be limited to the people similarity approaches described earlier in this paper. Instead they should be aimed at the use of interest measures to predict some aspects of job satisfaction or fulfillment. While it will be impossible to validate the predictions of job satisfaction deriving from the two hypotheses within a short time, initial steps should be undertaken and primitive initial types of validating data should be sought. Even crude initial data could give valuable information about the appropriateness and the problems of

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suggesting that a woman consider the occupation electrician, for example.

1.c. Tentative, short term forms of validation should be undertaken to determine user reaction to the appropriateness of inventory results, especially reaction after exploration of the suggested occupation.

1.d. Studies of the types of job satisfaction and their relation to vocational interests should be initiated.

Inventories as stimuli. Within our conception of the career guidance process, interest inventories serve primarily as stimuli to exploration. Thus, a second major area of expectation which we have for interest inventories concerns this role.

2. Interest inventory results should stimulate exploratory behavior.

If we expect interest inventories to serve as a stimuli, then we must examine the exploratory steps and actions which people take as a result of the inventory. Although the study of inventory impact could have been useful and informative at any time in the history of interest measurement, we have found only limited and very recent empirical examinations of such impact. Holland and his colleagues showed concern with the behavioral impact in the design of the SDS. Zener and Schnuelle (1972) empirically examined SDS impact on the number and type of occupational options considered. They reported an increase in the number of options considered after taking the SDS but no broadening of the type of option. Redmond (1972) reported that both boys and girls were likely to seek more vocational information after the SDS experience.

Note that when the goal is to produce certain types of behavior, then

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various aspects of the inventory must be examined in light of that goal. For example, under the goal of widening options, an inventory might result in 40 possibilities. Within the present concern with behavioral impact, 40 options would likely be overwhelming and produce little exploration. Thus, the two goals interact in the final answer of the best characteristics of an inventory. Note also another implication of trying to produce exploratory behavior concerns the supporting materials and score reports. Under this goal such materials should be designed to have maximal impact on exploratory behavior.

To study inventories as stimuli, information must be collected about the number and types of job explored after inventory use and about the forms that exploratory behavior took. Such studies, though not now available, can be accomplished in reasonable periods of time as they involve no long term follow-up, and supporting materials that may influence the results of such studies are relatively easy for publishers to modify. Thus, we are led to two more specific elements of guideline 2.

2.a. An interest inventory, its supporting materials, and its score reports should be designed to maximize exploratory action by the person taking the inventory.

2.b. Studies should be reported in inventory manuals to show the effect of lack of effect of the inventory on exploratory behavior.

Summary and Conclusions

We have described some expectations for interest measurement which can be examined at least in preliminary ways in a short time period. Accomplishment of those expectations will not answer all the ultimate, final questions

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about interest inventories as predictors of job satisfaction. It will, however, leave us in a position of beginning to answer those ultimate long-range questions while maximizing benefits and minimizing ill effects of present procedures.

It should be noted that the usefulness of an interest inventory for any group of concern (different age groups, racial-ethnic groups) can be evaluated in terms of how well these two areas of expectation are met within that group. If an inventory does not broaden options or produce exploration in the particular group of concern then we would question its use with that group. Similarly, the appropriateness of any type of interest scale (occupational or general, empirical or logical) would be judged in terms of whether it meets the stated expectations for broadening options and producing exploration.

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